IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A nucleic acid amplifier comprising at least one flow channel therein, ~~in which~~ wherein a reaction solution ~~containing~~ comprising at least a nucleic acid ~~to be used as a~~ template, a nucleic acid ~~to be used as a~~ primer, a phosphate compound, and a metal ion is caused to flow through the flow channel and to thereby perform ~~the~~ nucleic acid amplification in the flow channel, ~~characterized in that~~ wherein the flow channel comprises:

a denaturation region ~~in which~~ wherein a denaturation reaction is carried out, the denaturation reaction ~~including~~ comprising melting ~~an~~ the intramolecularly formed, ~~and/or~~ the intermolecularly formed, or the intermolecularly and intramolecularly formed double strand of the nucleic acid ~~to be used as the~~ template;

a regeneration region ~~in which~~ wherein a double strand is formed with the nucleic acid ~~to be used as the~~ template, after the double strand thereof is melted, and the nucleic acid ~~to be used as the~~ primer; and

a nucleic acid synthetase immobilized in the regeneration region.

Claim 2 (Currently Amended): [[A]] The nucleic acid amplifier ~~according to~~ of claim 1, wherein the nucleic acid amplifer further comprises a means for controlling temperature, wherein the means for controlling temperature is ~~included by the nucleic acid amplifier is~~ capable of heating the denaturation region and of keeping a temperature of the regeneration region lower than a temperature of the denaturation region.

Claim 3 (Currently Amended): [[A]] The nucleic acid amplifier ~~according to~~ of claim 1 ~~or 2~~, wherein the nucleic acid synthetase is immobilized on beads, and wherein the beads fill at least the regeneration region.

Claim 4 (Currently Amended): [[A]] The nucleic acid amplifier ~~according to~~ of claim 1 ~~or 2~~, wherein the nucleic acid synthetase is immobilized at least on an inner wall surface of the regeneration region.

Claim 5 (Currently Amended): [[A]] The nucleic acid amplifier of claim 1 ~~according to any one of claims 1 to 4~~, wherein the flow channel ~~provides~~ comprises the denaturation region and the regeneration region alternately.

Claim 6 (Currently Amended): [[A]] The nucleic acid amplifier according to ~~any one of claims 1 to 5~~ claim 1, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 7 (Currently Amended): [[A]] The nucleic acid amplifier ~~according to any one of claims 1 to 6~~ of claim 1, wherein the flow channel ~~provides~~ comprises a circulation flow channel~~, the circulation flow channel including~~ comprising the regeneration region and the denaturation region.

Claim 8 (Currently Amended): [[A]] The nucleic acid amplifier of ~~according to any one of claims 1 to 7~~ claim 1, further comprising a solution-sending device for directionally

regulating a flow of the reaction solution, wherein the solution-sending device is controllable to periodically reverse the direction of flow of the reaction solution.

Claim 9 (Currently Amended): A method of amplifying a nucleic acid~~, the nucleic acid being used as a~~ template in a reaction solution ~~containing~~ comprising at least the nucleic acid ~~to be used as the~~ template, a nucleic acid ~~to be used as a~~ primer, a phosphate compound, and a metal ion, comprising ~~the steps of:~~

(a) denaturing the nucleic acid ~~to be used as the~~ template by melting ~~an~~ the intramolecularly formed double strand, ~~and/or~~ the intermolecularly formed double strand, or the intramolecularly and intermolecularly formed double strand thereof at a predetermined region;

(b) regenerating a double strand by forming the double strand between the melted nucleic acid template obtained in ~~step~~ (a) ~~that to be used as the template wherein the double strand is melted~~ and the nucleic acid ~~to be used as the~~ primer at a region different from the region of ~~the step~~ (a); and

(c) contacting the reaction solution during, just after, or during and just after ~~and/or just after the step~~ (b) with a nucleic acid synthetase immobilized and retained in an active state at a region including the region on which ~~the step~~ (b) is performed.

Claim 10 (New): The nucleic acid amplifier of claim 2, wherein the nucleic acid synthetase is immobilized on beads, and wherein the beads fill at least the regeneration region.

Claim 11 (New): The nucleic acid amplifier of claim 2, wherein the nucleic acid synthetase is immobilized at least on an inner wall surface of the regeneration region.

Claim 12 (New): The nucleic acid amplifier of claim 2, wherein the flow channel comprises the denaturation region and the regeneration region alternately.

Claim 13 (New): The nucleic acid amplifier of claim 3, wherein the flow channel comprises the denaturation region and the regeneration region alternately.

Claim 14 (New): The nucleic acid amplifier of claim 4, wherein the flow channel comprises the denaturation region and the regeneration region alternately.

Claim 15 (New): The nucleic acid amplifier according to claim 2, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 16 (New): The nucleic acid amplifier according to claim 3, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 17 (New): The nucleic acid amplifier according to claim 4, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 18 (New): The nucleic acid amplifier according to claim 5, wherein the nucleic acid synthetase has an optimum temperature of 30 to 40°C.

Claim 19 (New): The nucleic acid amplifier of claim 2, wherein the flow channel comprises a circulation flow channel comprising the regeneration region and the denaturation region.

Claim 20 (New): The nucleic acid amplifier of claim 3, wherein the flow channel comprises a circulation flow channel comprising the regeneration region and the denaturation region.